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Waste Minimization Awareness Plan

Los Alamos
NATIONAL LABORATORY
Los Alamos, NM 87545

Produced by the Regulatory Compliance Focus Area

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Los Alamos National Laboratory
Environmental Restoration Project

WASTE MINIMIZATION AWARENESS PLAN

1.0 INTRODUCTION

Waste minimization is an inherent goal within all the operating procedures of the Los Alamos National Laboratory (the Laboratory). The U.S. Department of Energy (DOE) and the Laboratory are required to annually submit a waste minimization plan to the U.S. Environmental Protection Agency (EPA) in accordance with the Laboratory's Hazardous Waste Facility Permit. This document represents the waste minimization and pollution prevention (WMin/PP) awareness plan for the Laboratory's Environmental Restoration (ER) Project.

This plan supports the ER Project's WMin/PP goals and describes its program to incorporate waste reduction practices into ER activities and procedures. The plan was prepared by the ER Project Office, in the Environmental Science and Waste Technology (E) Division, pursuant to the requirements of Module VIII, Section B.1 of the Laboratory's Hazardous Waste Facility Permit (NM0890010515-1). This plan is specific to the ER Project and should be considered a companion document to the Laboratory's May 1997 site-wide plan, "Site Pollution Prevention Plan for Los Alamos National Laboratory," and the annual certification document "Los Alamos National Laboratory 1999 Environmental Stewardship Roadmap."

1.1 Background

The mission of the Laboratory's ER Project is to protect human health and the environment by identifying risks posed by inactive and surplus DOE facilities and contaminated areas, and by remediating sites and facilities as necessary in the most cost-efficient and responsible manner possible in order to provide for potential future beneficial use. In completing this mission, ER activities have the potential to generate large volumes of waste that may require special handling, treatment, storage, and disposal. Because the contamination is already present in the environmental media or facility (as a result of past DOE activities), the ER Project is not the original generator of the waste. However, the ER Project generates waste in the conduct of site cleanups and thus is faced with the responsibility and the challenge to minimize the amounts of waste that will require subsequent management or disposal. Minimization is necessary because of the high cost of waste management; the limited capacity for on-site or off-site waste treatment, storage, or disposal; the desire to minimize the associated liability; and the need to protect the environment from future off-site releases caused by improper waste management practices.

In 1990, Congress passed the Pollution Prevention Act (PPA), which changed the focus of environmental policy from "end-of-pipe" regulation to encouraging source reduction or eliminating waste prior to treatment, storage, or disposal. Under the PPA and other institutional requirements for treatment, storage, and disposal of wastes, all waste generators must certify that they have a waste minimization program "in place." The elements of this program are further defined in the May 1993 EPA interim final guidance, "Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program." The program guidance lists what EPA considers the minimum level of infrastructure and effort which must be expended to have an acceptable program. This includes top management support, process evaluation, technology exchange, waste minimization employee training, and waste generation tracking and projections.

The DOE Office of the Secretary also requires a pollution prevention program as outlined in the 1996 Pollution Prevention Program Plan. The DOE Plan has specific program requirements for every waste generator, which include evaluating waste minimization options as early in the planning process as possible. The DOE Plan also places responsibility for WMin/PP implementation with the waste-generating program. The DOE has set an annual 10% reduction goal for all wastes generated from facility decommissioning and site stabilization activities; the Laboratory's approach to achieving this goal is addressed later in this document.

1.2 Purpose and Scope

The purpose of this plan is to document the ER Project's approach for minimizing the wastes it generates. This plan discusses the goals, methods, and activities that will be routinely employed to prevent or reduce waste generation in fiscal year 2001 (FY01), and it reports historical waste generation quantities and significant waste minimization accomplishments for FY00. This plan also discusses the ER Project Program Manager's commitment to WMin/PP, provides a discussion of specific program elements of the ER WMin/PP program, and presents the barriers to implementation of further significant reductions.

This plan is designed to fulfill the waste minimization requirements in Module VIII, Section B.1. of the Laboratory's Hazardous Waste Facility Permit, and of the Hazardous and Solid Waste Amendments (HSWA).

This plan addresses all waste types generated by the ER Project during the course of planning and conducting the investigation and remediation of environmental media funded by the DOE Office of Environmental Restoration (EM-40). Wastes generated by ER include "primary" and "secondary" waste streams. Primary waste consists of contaminated material or environmental media that was present as a result of past DOE activities prior to any containment and restoration activities. It includes contaminated building debris or soil from investigations and remedial activities. Secondary waste streams consist of materials that were used in the investigative or remedial process, such as investigative-derived waste (e.g., personal protective equipment [PPE], sampling waste, drilling cuttings); treatment residues; wastes resulting from storage or handling operations; and additives used to stabilize waste. Types of wastes generated vary on a site-by-site basis and may include low-level radioactive waste (LLW); low-level mixed radioactive waste (LLMW); transuranic radioactive (TRU) waste; chemical wastes (which include RCRA hazardous, Toxic Substances Control Act (TSCA) toxic, and New Mexico special wastes); and/or solid waste.

The scope of a WMin/PP effort for an individual ER project will be dependent on the primary and secondary wastes expected and the feasibility of waste reduction for those waste types.

1.3 Requirements of the Operating Permit

Module VIII, Section B.1, of the Laboratory's Hazardous Waste Facility Permit, requires that a waste minimization program be in place and that a certified plan be submitted annually to the administrative authority. The specific requirements of the permit are listed in Table 1.3.1 along with the corresponding section of the plan that addresses the requirement.

Table 1.3.1
Los Alamos National Laboratory Hazardous Waste Facility Permit, Module VIII, Section B.1

Permit Requirement	Topic	Refer to Report Section
Section B.1.a.1	Policy Statement	Section 2.0
Section B.1.a.2	Employee Training	Section 6.3
Section B.1.a.2	Incentives	Section 6.10
Section B.1.a.3	Past Source Reduction and Recycling	Section 5.4
Section B.1.a.4	Itemized Capital Expenditures	Section 5.4
Section B.1.a.5	Barriers to Implementation	Section 7.0
Section B.1.a.6	Sources of Information	Section 6.4
Section B.1.a.7	Investigation of Additional WMin Efforts	Section 6.2
Section B.1.a.8	Utilization of Hazardous Materials	Section 5.2
Section B.1.a.9	Justification of Waste Generation	Section 5.0
Section B.1.a.10.a	Site Lead Inventory Program	Section 6.11
Section B.1.a.10.b	Steel for Lead Substitution Program	Section 6.11
Section B.1.a.10.c	Lead Shielding Coating Program	Section 6.11
Section B.1.a.10.d	Lead Decontamination Program	Section 6.6
Section B.1.a.10.e	Scintillation Cocktail Substitution Program	Section 5.2
Section B.1.a.10.f	Radioactive Waste Segregation Program	Section 6.6

2.0 ER PROJECT PROGRAM MANAGER POLICY STATEMENT AND MANAGEMENT COMMITMENT

The Laboratory's ER Project Program Manager, Focus Area Leaders, and other Project personnel are committed to preventing or reducing the generation of waste from ER Project activities, as much as is technically and economically feasible and consistent with the ER Project mission.

The Laboratory's support for pollution prevention and waste minimization programs is documented in the Laboratory Implementation Requirement (LIR) 404-00-02.3, “General Waste Management Requirements.” The ER Project additionally mandates waste minimization techniques in several of its standard operating procedures. In addition, the E Division Environmental Stewardship Office (ESO) is tasked by DOE and the Laboratory to champion and implement an aggressive waste minimization and environmental stewardship program for the entire facility.

The ER Project fully supports the Laboratory’s and Environmental Science and Waste Technology (E) Division’s written WMin/PP policies, programs, and commitments. The ER Project will support the goal of waste reduction by giving preference to source reduction, improved segregation and characterization, and environmentally sound recycling practices regarding waste treatment and disposal techniques, to the maximum extent practicable. Evidence of the ER Project commitment is demonstrated by this plan, as well as by the documentation of past waste reduction efforts within the ER Project (Section 5.4). The ER Project will allocate sufficient resources to pursue the goals and approaches established by this plan and will coordinate with the Laboratory’s ESO, as necessary.

3.0 ORGANIZATIONAL STRUCTURE AND STAFF RESPONSIBILITIES

The ER Project is part of the E Division at the Laboratory and is subject to all Laboratory and E Division policies and requirements. The organizational structure of the ER Project as of October 2000 is shown in Figure 3.0.1.

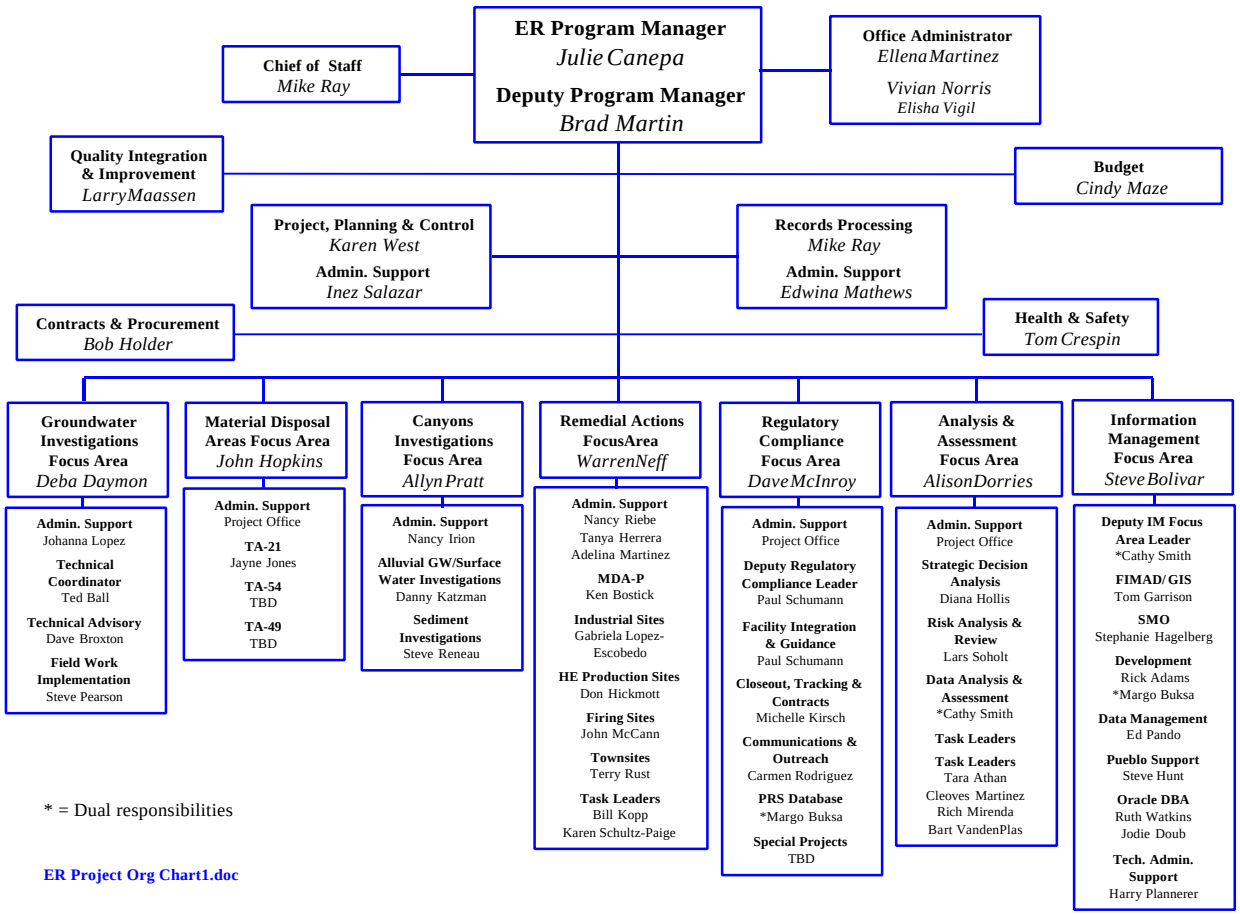

Figure 3.0.1. ER Project Organization Chart

The organizational structure for developing and implementing WMin/PP programs is outlined below:

- The Laboratory Director and the Deputy Director for Operations have oversight responsibilities and provide annual review of the Laboratory-wide WMin/PP program goals and performance.
- The E Division has primary responsibility for the Laboratory-wide WMin/PP program, including the ER Project.
- The E/ESO has been delegated by the E Division to develop and manage the Laboratory-wide WMin/PP and environmental stewardship program. The ESO provides oversight for WMin/PP implementation; a base of technical knowledge and resources for WMin/PP practices; assistance with identifying waste generation trends and WMin/PP opportunities; recommendations for WMin/PP solutions and applications; support in tracking and reporting waste generation trends and WMin/PP successes; assistance in preparing funding applications and proposals for WMin/PP projects; and facilitation of actions to overcome WMin/PP implementation barriers.

- The ER Project Focus Area Leader has primary responsibility for developing and implementing WMin/PP programs and strategies for all ER projects that result in waste generation, as described in this plan. The ER Project must allocate sufficient resources to facilitate the successful attainment of the goals and approaches identified in this plan. The ER Project is responsible for establishing and submitting an annual WMin/PP plan to the administrative authority, establishing WMin/PP goals and performance measures, and coordinating with the ESO, as necessary, to implement WMin/PP activities and to report success stories.
- The ER Project Regulatory Compliance Focus Area Leader is the focal point for planning and implementing waste minimization activities and reporting waste minimization successes for the ER Project.
- ER Project Focus Area Leaders report to the ER Project Program Manager. Focus Area Leaders are responsible for identifying and incorporating WMin/PP practices into project plans and field activities, as much as technically and economically feasible.
- The ER Project Waste Management and Minimization Coordinator is responsible for coordination of waste minimization activities, coordinating proposals for waste minimization implementation projects, advising project leaders on WMin technologies and techniques, recommending ER Project-wide policy, and compiling waste generation and minimization data.

4.0 GOALS AND PERFORMANCE MEASURES

The overall goal of the ER WMin/PP strategy is to increase the routine implementation of WMin/PP practices in the planning and execution of ER activities to avoid or reduce the generation of waste requiring subsequent handling or disposal. Performance measures for the WMin/PP effort include

- increased cognizance of WMin/PP within the ER Project;
- reduced or avoided volume of waste;
- recyled or reused volume of material; and
- documentation of WMin/PP successes.

The DOE Headquarters established an annual DOE complex-wide 10% reduction goal for the ER Project based upon the overall waste projections. Additionally, the University of California FY01 contract performance measures with DOE includes an 18% reduction goal for sanitary (“solid waste”) wastes.

The ER Project will quantify the reduction goals for FY01 based upon completion of the work-planning baseline in November 2000.

The ER FY01 WMin/PP approach will focus on

- integrating waste minimization principles into the remedial planning process;
- recycling and reusing materials;
- developing subcontractor waste minimization incentives through contract specifications;
- dedicating waste minimization resources to assist with large remedial actions; and
- tracking, projecting, and analyzing waste data to improve waste management economies of scale.

Figure 4.1 shows the environmental hierarchy for ER wastes. Although source reduction is preferred, the ER WMin/PP approach recognizes that there may be limited opportunity for source reduction of primary wastes because much of the waste already exists and potential environmental and health concerns may require removal. When appropriate, source reduction of primary wastes will be accomplished through the application of risk-based cleanup criteria, land-use scenarios, and the consideration of in-situ or non-intrusive remediation technologies during project planning and negotiation stages, and improved characterization and segregation during the execution of field activities. Source reduction of secondary wastes will be accomplished through proper planning; improved housekeeping, segregation and characterization; and application of WMin/PP criteria during technology selection, design and construction activities. Recycling and reuse practices will be considered for all primary and secondary wastes. Volume reduction, including size reduction, compaction, and optimal packaging, will be considered for all primary and secondary wastes that cannot be avoided or recycled.

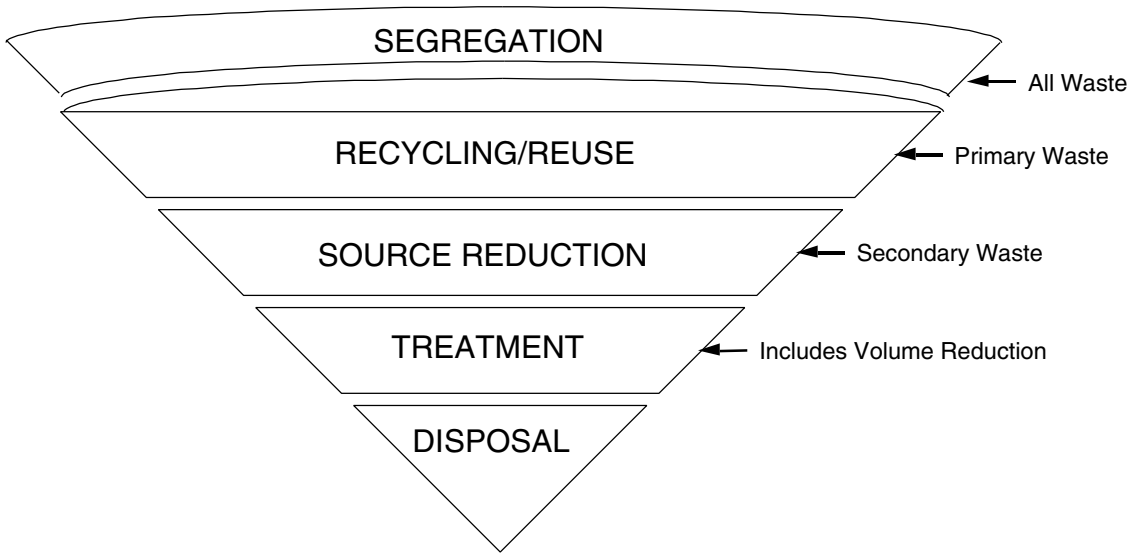

Figure 4.1. Environmental Management Hierarchy within Environmental Restoration

The WMin/PP approaches outlined above are consistent with the waste reduction priorities established by the Laboratory's site-wide waste minimization plan, which recognizes the severe limitations of on-site disposal capacity for LLW and on-site storage capacity for LLMW. In addition, the approach was adopted to address the variable and non-recurring nature of wastes coming from ER activities.

5.0 SITUATION ANALYSIS

The FY00 activities which resulted in waste generation included remedial actions and site investigations. These types of activities are anticipated to continue through the life of Laboratory's ER Project. It should be noted that the majority of FY00 waste generation was the result of RCRA clean closure activities at Material Disposal Area P.

The FY01 planned activities include additional deep groundwater monitoring and intermediate well installation, completion of the Material Disposal Area P clean closure, generation of waste from an interim action at a high-explosives site, remediation of several radioactive releases, and other small site investigations and corrective action projects.

5.1 Applicable Regulations

The Laboratory's ER Project is subject to many environmental regulations. The key drivers for the WMin/PP program are listed below. A complete description of these regulations may be found in the LANL Waste Minimization Awareness Plan or the "Waste Minimization and Pollution Prevention Regulations and Orders, Requirements and Identification List." (DOE/EM, May 1995).

Federal Acts/Regulations and Executive Orders

- Resource Conservation and Recovery Act (RCRA)
- Pollution Prevention Act (PPA)
- Executive Order 12873 - Federal Acquisition, Recycling, and Waste Prevention
- Executive Order 12856 - Federal Compliance With Right-to-Know Laws and Pollution Prevention

State of New Mexico Regulations

- New Mexico Solid Waste Act, NMAC 9.1
- New Mexico State Hazardous Waste Act, NMAC 4.1

DOE Policy

- DOE Order 5400.1, General Environmental Protection Program
- DOE Order 5400.3, Hazardous and Radioactive Mixed Waste Program
- DOE Order 5400.5, Radiation Protection of the Public and the Environment
- DOE Order 435.1, Radioactive Waste Management
- Secretary of Energy Notice 37-92, Waste Minimization Policy Statement
- DOE Pollution Prevention Program Plan, 1996

Los Alamos National Laboratory Directives and Policies

- Site Pollution Prevention Awareness Plan for Los Alamos National Laboratory
- Laboratory Implementation Requirement (LIR) 404-00-02.3, "General Waste Management Requirements"

5.2 Justification for the Usage of Hazardous Materials

ER Project activities currently introduce only small amounts of hazardous materials into field and support operations. During the past years, most usage of hazardous materials has been substituted with less hazardous alternatives in an effort to reduce the generation of secondary hazardous or mixed waste. These efforts include the following list.

- Decontamination Solvents - The use of the hazardous solvents has been eliminated in the ER Project.
- Scintillation Cocktails - The routine use of scintillation cocktails media which results in a RCRA hazardous/mixed waste has been discontinued at the Laboratory.
- Analytical Processes - Some of the sample analyses required for site characterization may involve the use of hazardous substances as prescribed by EPA analytical procedures, SW-846.

These analytical processes have been evaluated by EPA, private companies, and universities for potential alternative processes and material substitution. The use of hazardous substances in the analysis is currently viewed as necessary.

5.3 FY00 Waste Generation Summary

The ER Project FY00 waste generation and waste minimization summary is listed in Table 5.3.1. Waste projections and reduction goals will be finalized upon completion of activity planning in November and December 2000.

Table 5.3.1
Fiscal Year 2000 Waste Generation Summary
(October 1, 1999, through September 30, 2000)

Waste Type	FY00 Planned Waste Volume (m^3) from ER and Stabilization Activities	Volume (m^3) of Waste Targeted for Reduction/ Recycle to Achieve Goal	FY00 Waste Generation Volume (m^3)(1)	FY00 Year to Date Reduction/ Recycle Volume (m^3)	Percent Reduction
ALLA0562: AL009/LANL Environmental Restoration					55%
Solid – Transuranic Radioactive	0	0	0	0	
Solid – Mixed Low-level Radioactive	8	0	2.2	0.3	
Solid – Low-level Radioactive	8	0	159(2)	0	
Solid – Hazardous (3)	11,292	1,538	14,097	3,539	
Solid – Sanitary (Non-regulated)	5,285	618	8	4,398	

1 Includes wastes generated by DOE-EM activities; and excludes wastes generated by Fire Recovery activities and flood preparation projects.

2 Excludes LLW disposed from the TA-33 Segmented Gate System demonstration generated in FY99 but disposed in FY00.

3 Includes RCRA, TSCA, and NM Special.

5.4 Waste Minimization Accomplishments FY00

WMin/PP was an integral part of the FY00 ER planning activities and field projects through recycling, reuse, contamination avoidance, risk-based cleanup strategies, and many other practices. Waste reduction benefits are typically difficult to track and quantify because the data to measure the amount of waste reduced (as a direct result of a WMin/PP activity) are often not available and are not easily extrapolated. In addition, many waste minimization practices employed during previous years are incorporated into standard operating procedures and no longer reported. Operating expenses of $50,000 are provided annually to evaluate source reduction and recycling options.

High volume waste streams resulting from ER activities include contaminated soil and demolition debris such as metal and concrete. The WMin/PP techniques used in FY00 to reduce these high volume waste streams led to the following accomplishments:

- At Material Disposal Area P, 780 cubic meters of steel was decontaminated, segregated, and sent to a commercial steel recycling facility;
- At Material Disposal Area P, 1,600 cubic meters of decontaminated concrete was reused on-site at the Laboratory as fill;
- At Material Disposal Area P, 740 cubic meters of rock was reused on-site for storm water controls;

- At Material Disposal Area P, 4,398 cubic yards of soil was sent to the Laboratory's TA-54 "Area J" for use as fill material in site closure preparation;
- At Solid Waste Management Unit (SWMU) 00-019, a drum of contaminated lead was decontaminated and recycled.

6.0 WASTE MINIMIZATION PROGRAM ELEMENTS

Listed below are program elements of the Laboratory's ER Project waste minimization program for FY01. Several of the elements are currently in place; however, several are in the planning stages. The elements which are listed as planned will be implemented if economically and technically feasible.

6.1 WMin Coordinator

The WMin/PP coordinator will have a primary role in FY01 for developing and implementing programmatic elements of the ER WMin/PP program by conducting the following activities:

- Improve WMin/PP awareness and information exchange within the ER Project.
- Provide technical reviews and WMin/PP input to ER documents and procedures, such as corrective measures studies, sampling and analysis plans, or other project work plans and provide working examples of "model" documents that incorporate WMin/PP elements.
- Assist with an ER Project Equipment Sharing Program to identify equipment needs that may be served by use of equipment that is currently available at other DOE facilities, thus reducing the purchase or lease of new equipment.
- Provide technical assistance and consistency among focus areas to formalize standard approaches for WMin/PP in ER Project plans and procedures and institutionalize the use of design reviews, WMin/PP checklists, or value engineering for WMin/PP applications.
- Assist in developing WMin/PP language for ER subcontractor documents and project specifications so as to provide incentives and measurable goals for waste reduction.
- Pilot test or demonstrate site-specific waste reduction activities with a high potential for immediate return on investment.

The WMin coordinator(s) will provide WMin/PP tools and practices to the ER Project. The specific application and waste reduction potential of a tool will be dependent on the specific ER project and left to the judgment of the individual project leaders. The common Wmin/PP tools for use in the ER Project are summarized in the list that follows.

- WMin/PP tools for the Negotiations and Planning Phases
  - Negotiate with regulators to recognize and implement WMin/PP where appropriate
  - Write WMin/PP into ER program documents
  - Include WMin/PP in budgets and contracts
  - Integrate WMin/PP into construction team activities
  - Train ER personnel on WMin/PP and build WMin/PP awareness
  - Conduct workshops identifying WMin potentials for large sites

- WMin/PP tools for the Assessment Phase include
  - Conduct efficient sample management and analysis
  - Consider alternative sampling techniques
  - Consider alternative drilling techniques
  - Segregate materials and waste through field screening
  - Use site control techniques
  - Use bulk waste packaging
  - Train ER personnel on WMin/PP and build WMin/PP awareness
- WMin/PP tools for the Alternative Evaluation and Selection Phase include
  - Identify WMin/PP as a key criterion during treatment selection
  - Incorporate WMin/PP in key decision-making documents
  - Conduct treatability studies that support WMin/PP
  - Train ER personnel on WMin/PP and build WMin/PP awareness
- WMin/PP tools for the Implementation Phase include
  - Scour and decontaminate building materials
  - Recycle and reuse materials from decommissioning activities
  - Prevent contamination migration
  - Dedicate a person on each ER project to promote WMin/PP (e.g., a WMin coordinator)
  - Reuse equipment
  - Train ER personnel on WMin/PP and build WMin/PP awareness

6.2 WMin Planning

WMin/PP is best integrated during the project planning, design, and engineering phases. WMin/PP strategies incorporated during the planning (and negotiations) phases are some of the few opportunities for "source reduction" because they have the potential to avoid or reduce the generation of contaminated soil and building debris, which represent a significant waste volume within the ER Project. Well-defined agreements (with regulators and stakeholders) regarding land-use scenarios, cleanup performance standards and risk and pathway scenarios are highly effective in avoiding or reducing these primary wastes (e.g., soil, building debris) and secondary wastes.

6.3 Employee Training and Awareness Plan

Waste minimization implementation is most effective when all employees consider WMin/PP part of their job responsibilities. To accomplish this, a planned approach to building waste minimization awareness has been developed. The goals of the awareness program are to

- improve recognition among employees that WMin/PP practices apply to ER activities;
- educate employees about successful implementation at the Laboratory and within DOE; and
- improve documentation of WMin/PP accomplishments.

In addition to awareness activities, the following training is mandatory for ER waste-handling personnel. It addresses various topics including waste minimization:

- "Waste Management Coordinator Requirements"
- "Waste Generator Overview"
- "Waste Documentation Forms"
- "Waste Packaging, Shipping, and Materials Handling"

In addition to the above classes, each focus area's waste management coordinator (WMC) is required to attend quarterly WMC meetings as ongoing training in issues important to performing the duties of a WMC.

6.4 Information and Technology Introduction

The introduction of new technologies for WMin/PP and waste management approaches is important to minimizing wastes. To support technology exchange, the waste minimization coordinators are available to research technologies or WMin/PP tools for ER Project Focus Area Leaders, as necessary to attain information on technical or economic feasibility. They are also available to train project personnel on the access and usage of several large information sources such as

- DOE, Remedial Action Project Information Center, Oak Ridge, TN
- DOE, EPIC (the DOE Pollution Prevention Information Clearinghouse), Pacific Northwest Labs, Richland, WA
- EPA, Superfund Innovative Technology Evaluation (SITE) Database

6.5 Tracking and Reporting

The routine collection of waste minimization accomplishments data was established in FY96. Project managers are asked to provide a list of accomplishments as they occur, with a formal quarterly data consolidation effort.

6.6 Sort, Decontaminate, and Segregate

This task is currently implemented and is designed to sort and decontaminate LLW materials from decommissioning operations for the purpose of eliminating their disposal at TA-54 as low-level radioactive waste. Typical sorting practices include collection of all metal debris (including steel, lead, etc.) in separate boxes destined for shipment to a decontamination facility or commercial smelter for metals recovery. Decontamination work will involve the removal of surface radioactive contamination on equipment to allow for its reuse either at Los Alamos or other DOE facilities.

Additionally, many sites containing heterogeneous radioactive contamination will place emphasis on proper segregation at the source to attain the maximum recycling and waste classification advantages.

6.7 Compaction

The ER Project plans to improve implementation of this process by utilizing the compaction unit at TA-54 on suitable waste prior to final disposal. The compactor at TA-54 has a higher compaction yield than other equipment available in the past.

6.8 Survey and Release

Past practices have conservatively classified nonindigenous investigative-derived waste (PPE, sampling materials, decontamination water) as contaminated, based on association with contaminated areas. New policy within the Laboratory allows the ER Project to develop procedures to survey and release these materials as nonradioactive. This will have a dramatic impact on the volume of low-level waste buried at Area G from ER activities. Waste management coordinators will be trained in the Laboratory Implementation Requirement (LIR) 402-704-01.2, "Contamination Control."

6.9 Risk Assessment

Human health risk assessments are routinely conducted for ER projects, as prescribed in the Laboratory's Installation Work Plan (LANL 1998, 62060). Risk assessments allow the ER Project to plan remediation activities on the basis of the future risk to health and the environment. Often the risk assessment may determine that it is adequately protective and appropriate or beneficial to leave the material in the ground, thus avoiding the generation of waste.

Properly designed land-use agreements and risk-based cleanup strategies can provide flexibility to select remedial actions (or other technical activities) that may avoid or reduce the need to excavate or conduct other actions that typically generate high volumes of remedial waste. This is one of the few opportunities for source reduction.

6.10 Incentives Programs

The ER Project participates in the Laboratory-wide "Waste Minimization/Waste Generation Set-aside Tax" system. This system charges the ER Project based on the volumes and toxicity of wastes generated from the program. This financial burden is an incentive for ER Project managers to reduce waste generation to lower total project costs. The ER Project is actively soliciting Return on Investigation (ROI) proposals for WMin/PP projects that are eligible for funding through this tax.

6.11 Lead-Handling Procedures

The ER Project does not routinely procure or use lead or handle excess lead. The inventory and decontamination of existing lead at the Laboratory has been conducted as part of a milestone of the Laboratory's Federal Facilities Compliance Act agreement and is out of the scope of the ER Project.

ER activities will manage and minimize the amount of lead-contaminated waste using the following approaches.

- Projects will specify a preference to avoid the procurement or use of lead, when possible, giving preference to the use of steel in place of lead.
- Projects will specify the use of strippable or washable coatings for any lead materials that must be used and have the potential to become contaminated.

- Projects will plan for the decontamination of lead materials, when economically feasible, using blast grit, carbon dioxide blast (or other nondestructive blast), or chemical decontamination techniques. Preference will be given to decontamination techniques that minimize the generation of secondary waste (from the treatment process).
- Projects that handle noncontaminated lead waste as a primary waste from the removal action or decommissioning activity will make efforts to recover and redistribute the lead for use at the Laboratory or at another DOE facility.
- Projects will coordinate with the Laboratory's Solid Waste Operations Group for the appropriate handling and disposition of radioactively contaminated lead that cannot be decontaminated or redistributed.

6.12 Equipment Reuse

The reuse of equipment and materials such as plastic gloves, sampling scoops, plastic sheeting, and PPE will produce significant waste reduction and cost savings in FY01.

In addition, the Laboratory has initiated an equipment-exchange program, which attempts to identify surplus or inactive equipment for use. This not only saves capital equipment dollars by not purchasing the equipment, but it also delays the eventual disposal of the equipment when no longer needed.

7.0 BARRIERS TO WASTE MINIMIZATION IMPLEMENTATION

In some instances, existing regulatory requirements created situations where actual levels of waste minimization could not meet those potentially achievable based on site conditions. For example, at one ER Project site (Material Disposal Area P), a closure plan, submitted to regulatory agencies, required clean-closure of the disposal area. Some materials from the disposal area, upon sampling and segregation, could be proven to be within acceptable cleanup criteria and left on-site for use in final site grading. However, because of the closure plan requirements, this material is being shipped off-site as waste. Future remedial plans will ensure that acceptable materials may be reused on-site to the maximum extent practicable, pending regulatory concurrence.

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